



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,223	08/31/2006	Roger John Leach	COLGRA P68AUS	7816
20210 7590 11/25/2009 DAVIS & BUJOLD, P.L.L.C. 112 PLEASANT STREET CONCORD, NH 03301				
EXAMINER KHATRI, PRASHANT J				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
11/25/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,223

Applicant(s)

LEACH, ROGER JOHN

Examiner

PRASHANT J. KHATRI

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-38 and 40-49 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 27-38 and 40-49 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

In response to Amendments/Arguments filed 6/29/2009. Claims 27-38 and 40-49 are pending. Claims 40 and 48 were amended. Claim 49 was added as new.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 27-31, 37, 45-47, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sopko et al. (***US 4022601***) in view of Hashizume (***US 20010031817***) and Gerhardinger et al. (***US 5714199***).
3. Sopko discloses a method and apparatus for coating a glass substrate. Prior art discloses the method of depositing a vaporized pyrolyzable organometallic salt material onto a substrate (***col. 4 bridged to 5, lines 66+***). As shown in Figure 1, the glass material is heated on the other side of the vaporization nozzles. The purpose of the heating means is to prevent glass warpage (***col. 9 bridged to 10, lines 66+***). Examiner takes the position that heating the substrate from the opposite side of the vaporization nozzles would also result in an even coating of the deposited material due to the reduction of warpage thereby reducing the defects within the coating (i.e. uneven coating of material). Prior art discloses the heating means may be infrared lamps or infrared reflectance heaters and multiple heaters may be used (***col. 10, lines 1+***). Given that the prior art discloses the above, Examiner takes the position that the use of

infrared heating from the bottom would result in the same effect as that presently claimed. Furthermore, it is well-known that the basic thermodynamic laws of heat convection establish that heat rises. Given that there are several different configurations given by the prior art, Examiner takes the position that in this case, the application of the infrared heaters underneath the glass substrate would establish a two-fold purpose: first, a method for preventing warpage of the glass substrate and second a means for uniformly coating the substrate due to the heat rising from the bottom surface. Regarding claim 46, it is noted that the glass ribbon is heated prior to the coating step (**col. 7, lines 50+**). Given that the present claims only require a preheating, Examiner takes the position that the glass ribbon is in fact preheated prior to the deposition of the coating and further as shown by prior art, the deposition takes place with infrared heaters placed below the second surface of the glass ribbon. Given that the Regarding claims 30 and 31, Examiner considers the infrared reflectance heaters to function by reflecting radiation off of the inner walls to focus the heat onto a surface. However, prior art is silent to the presently claimed thermosetting powder and adhesion promoting materials.

4. Hashizume discloses a powder coating composition comprising metallic flakes mixed with a thermosetting resin. Prior art discloses the thermosetting resin as acrylic resins, polyester resins, polyurethane resins, and epoxy resins (**para. 0011**). It is noted that the reason thermosetting resins are used as opposed to the previous metallic substances in organic solvents is that it is a low pollution coating (**para. 0002**). While Examiner acknowledges that Sopko discloses a vaporized pyrolyzable organometallic

material, one of ordinary skill in the art, due to environmental considerations would have known to modify the process by involving the present composition. Examiner notes that although the disclosure is drawn towards metallic substrates, given the thermosetting resins disclosed are the same as that used in the present invention, one of ordinary skill in the art would have known that the above materials are capable of the same purpose on glass substrates. Furthermore, the presently claimed second thermosetting powder layer would have been obvious to one of ordinary skill in the art to yield a plurality of different colored layers for aesthetic purposes.

5. Gerhardinger et al. disclose the use of a silane may be included within the powder (**col. 5, lines 19+**) or sprayed on prior to the application of the pre-polymer powder (**col. 9, lines 29+**). Examiner takes the position that silanes are well-known as adhesion promoters and used to enhance bonding between dissimilar surfaces and materials. Further, the resultant material would not delaminate or "chip" from the surface of the substrate.

6. Note that while Hashizume and Gerhardinger et al. do not disclose all the features of the present claimed invention, Hashizume and Gerhardinger et al. are used as teaching references, and therefore, it is not necessary for these secondary references to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather these references teach a certain concept, namely, thermosetting powder material and adhesion promoters in order to reduce environmental impact and enhance bonding between dissimilar surfaces and materials

and in combination with the primary reference, discloses the presently claimed invention.

7. All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. Sopko discloses a method and apparatus for coating a glass substrate. However, prior art is silent to the presently claimed thermosetting powder and adhesion promoting materials. Hashizume discloses a powder coating composition comprising metallic flakes mixed with a thermosetting resin. The motivation to combine the above references is drawn towards thermosetting resins as opposed to the previous metallic substances in organic solvents are low pollution coating materials, which is more environmentally-friendly and silane materials as disclosed by Gerhardinger are well-known as providing enhanced bonding between dissimilar surfaces and materials. The Courts have made clear that the teaching, suggestion, or motivation test is flexible and an explicit suggestion to combine the prior art is not necessary. The motivation to combine may be implicit and may be found in the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. *Id. at 1366, 80 USPQ2d at 1649*. "[A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the improvement is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient. Because the desire to enhance commercial opportunities by improving a product or process is universal-and even common-sensical-we have held that there exists in these

situations a motivation to combine prior art references even absent any hint of suggestion in the references themselves. In such situations, the proper question is whether the ordinary artisan possesses knowledge and skills rendering him capable of combining the prior art references." *Id. at 1368, 80 USPQ2d at 1651. See MPEP 2143 (G).*

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sopko et al. (**US 4022601**) in view of Hashizume (**US 20010031817**) and Gerhardinger et al. (**US 5714199**) as applied to claim 29 above, and further in view of Horinka et al. (**article**).

9. Prior art discloses the above in paragraphs 3-7. However, prior art is silent to the varying frequency.

10. Horinka discusses the relationship between frequency, wavelength, and energy level for infrared curing process of powder coatings. It is noted that wavelength is inversely proportional to frequency; therefore, at longer wavelengths, the frequency would be lower and at shorter wavelengths, the frequency would be higher. Furthermore, as disclosed by prior art low energy is equivalent to low temperatures and high energy to high temperatures (**p. 1**). Prior art additionally discloses that some systems may have controls whereby the voltage may be adjusted (**p. 2**). Examiner takes the position that controlling voltage would thereby control the energy disposed.

11. Note that while Horinka does not disclose all the features of the present claimed invention, Horinka is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413,

208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the effect of frequency on infrared energy in order to show that frequency may be controlled by increasing or decreasing voltage and in combination with the primary reference, discloses the presently claimed invention.

12. Horinka is drawn to discussing the various factors associated with infrared curing during a powder coating process. Varying the frequency, or energy would be obvious to one with ordinary skill in the art as it is recognized that at higher energies, the material would melt faster and for an even coating that does not degrade, a control would be added to the system.

13. Claims 33-36, 38, 40-44, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sopko et al. (**US 4022601**) in view of Hashizume (**US 20010031817**) and Gerhardinger et al. (**US 5714199**) as applied to claim 45 above, and further in view of Boucher et al. (**US 3549466**) and Storrs (**US 1988964**).

14. Prior art discloses the above in paragraphs 3-7. However, prior art is silent to a metal foil on the edges.

15. Boucher et al. disclose the use of metal foil edge seals on a transparent assembly (**col. 2, lines 67+**). Prior art discloses the metal foil allows for protection against harmful gases within the atmosphere (**col. 1, lines 55+**) and the ingress of moisture in an "air gap" type of panel (**col. 3, lines 45+**). The thickness the foil is from 0.003 inch and 0.010 inch (**col. 2, lines 68+**), which when converted is 76 microns to 254 microns. However prior art is silent to inward extension of the metal foil.

16. Storrs discloses a metal edge strip as holding means that forms inward extensions (**FIGS. 2-6**). Prior art discloses the holding means prevent dust or dirt from entering an air gap in a double pane installation, which results in a high thermal insulation (**p. 3; 1st col. bridged to 2, lines 48+**). Regarding the inward extension length, Examiner takes the position that the length is an optimizable feature that one of ordinary skill in the art would know to vary depending on the size of the glazing, while maintaining the thermal insulation characteristics of the prior art disclosure. While it is noted that the material disclosed by prior art is not explicitly a foil, as shown by prior art, the edge sealing features allow for protection against moisture, gases, dirt, and the like. Further, given that the resultant structure would be the same as presently claimed, Examiner takes the position that the resultant structure would inherently reduce thermal stresses in dual pane installations.

17. Note that while Boucher et al. and Storrs do not disclose all the features of the present claimed invention, Boucher et al. and Storrs are used as teaching references, and therefore, it is not necessary for these secondary references to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather these references teach a certain concept, namely, metal foil and an inward extension in order to yield an edge seal feature that is capable of providing dual pane glazings protection from moisture, dust, and dirt and in combination with the primary reference, discloses the presently claimed invention.

18. All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. Boucher et al. disclose the use of metal foil edge seals on a transparent assembly. However prior art is silent to inward extension of the metal foil. Storrs discloses a metal edge strip as holding means that forms inward extensions. The motivation to combine the above references is drawn towards the metal foil used for protection against harmful gases within the atmosphere and ingress of moisture. Further, it is noted that the inward extension as shown by Storrs allow for protection against moisture, gases, dirt, and the like. Therefore, it would have been obvious to one of ordinary skill in the art to apply a metal foil with the inward extension of the foil edges for protection of a dual pane installation.

Response to Arguments

19. Applicant's arguments filed 6/29/2009 have been fully considered but they are not persuasive. Regarding Sopko, Applicant asserts that Examiner needs to provide evidence or sworn declaration in support of the position taken. Examiner would like to note that Applicant has not explicitly recited that heat cannot be provided from the top as well as the bottom. Furthermore, Applicant is reminded that Examiner did not take official notice and given that Applicant has not provided any evidence to the contrary that , the rejection is maintained. Applicant further asserts that the combination of references as shown above teach away and would destroy the apparatus as disclosed by Sopko. Examiner respectfully disagrees and notes that Applicant is not claiming an apparatus and merely a method for forming a coating upon a glass surface. Given that

Sopko discloses as much in addition to the infrared heaters which heat the undersurface of the glass, Examiner takes the position that the combination is known within the art in multiple disclosures as shown above. Applicant further asserts that there is no motivation to combine Hashizume with Sopko. Examiner notes that Hashizume clearly discloses that the powder composition of Hashizume is more environmentally friendly than other coating materials for glass. Regarding the Boucher and Storrs references, Applicant asserts that In response to applicant's argument that the prior art is silent to reducing the thermal stress effects which are provided by the metal foil, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). As such, the rejections are maintained.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is (571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

PRASHANT J KHATRI
Examiner
Art Unit 1794